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(Harbors--Sanitation)

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27846. Matyakin, G. I. Opyt sozdaniya lesnykh polos posevom. Les i step' 1949, No. 2 s. 63-72.

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BYALOBZHESKIY, Grigoriy Valerianovich, kand.tekhn.nauk; MATYAKIN, Georgiy Il'ich, kand.sel'skokhoz.nauk; PROKHOROVA, Zara Aleksandrovna, nauchnyy sotrudnik; PRYAKHIN, Viktor Dmitriyevich, nauchnyy sotrudnik; IVANOV, S.S., red.; MAL'KOVA, N.V., tekhn.red.

[Using narrow forest snowbreaks along highways] Primenenie uzkikh snegozashchitnykh lesnykh polos na avtomobil'nykh dorogakh. Moskva, Nauchno-tekhn.izd-vo M-va avtomobil'nogo transporta i shosseinykh dorog RSFSR, 1960. 37 p. (MIRA 13:11)
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(Roads--Snow protection and removal)

MATYAKIN, Georgiy Il'ich, kand. sel'khoz. nauk; PRYAKHIN, V.D., nauchnyy sotr.; PROKHOROVA, Z.A., nauchnyy sotr.; KOVRYZHNYKH, L.P., red.; GALAKTIONOVA, Ye.N., tekhn. red.

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(MIRA 16:10)

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1. Institut khimii polimerov AN UzSSR.

MATYAS, Antal, a kozgazdasagi tudomanyok kandidatusa, egy. docens

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1. Marx Karoly Kozgazdasagtudomanyi Egyetem, Budapest.

(Communism) (Supply and demand)
(Bognar, Jozsef)

MATYAS, E.

Miner's Day. p. 293.

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Uncl.

MATYAS, Eugen, ing.

Preparation and organization of stock inventory and revaluation of fixed funds. Energetica Rum 12 no.9:457-460 S '63.

1. Deputy Minister of Mines and Electric Power.

MATYAS, Eugen, ing.

Preparation and organization of inventory work and re-evaluation of the fixed capital. Rev min 15 no.9:429-432 S '64.

1. Deputy Minister, Ministry of Mines and Electric Power.

H-5

COUNTRY : Rumania
CATEGORY :

ABS. JOUR. : RZKhim., No. 51960, No. 18284

AUTHOR : Rott, L. and Matyas, I.
INST. : Not given
TITLE : The Investigation of the Settling of Suspended Solids with a Photoelectric Colorimeter

ORIG. PUB. : Hidrotehnica, 4, No 2, 66-69 (1959)

ABSTRACT : The following method is proposed for the study of the coagulation process in water. The specimen to be studied is mixed with a coagulating agent and placed in the cuvette of the colorimeter, and the per cent of light absorption is measured at regular intervals of time. The shape of the curve giving the change in per cent absorption with time depends on the size of the flocs formed. The method gives objective data, is sensitive and precise, and is recommended as a control tool in

CARD: 1/2

217

COUNTRY	:	Rumania	H-5
CATEGORY	:		
ABS. JOUR.	:	RZKhim., No. 5 1960, No.	18284
AUTHOR	:		
INST.	:		
TITLE	:		
ORIG. PUB.	:		
ABSTRACT	:	the determination of optimum coagulation conditions. Ya. Matlis	

CARD: 2/2

MATYAS, Istvan

Some words about wood economy. Faipar 8 no.1/2:23 Ja-F '58.

MATYAS, Jozsef

The situation of cattle breeding in Vas County. Stat szemle 37 no.5:538-545 My '59.

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p. 199 (STROJE ZPRACOVANI INFORMACI) Vol. 5, 1957,
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SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3,
March 1958

MATYAS, J.

Method of solving certain problems on the differential analyzer.

p. 251 (STROJE ZPRACOVANI INFORMACI) Vol. 5, 1957,
Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3,
March 1958

Z/039/60/021/01/006/040
E140/E135

AUTHOR: Josef Matyáš

TITLE: Programming Linear Differential Equations with Constant Coefficients on Analog Computers

PERIODICAL: Slaboproudý Obzor, 1960, Vol 21, Nr 1, pp 24-29

ABSTRACT: The article presents a review of various methods of programming analog computers. A set of rules is given based on the author's previous work (Ref 8) for finding the appropriate network directly from the differential equation without further mathematical operations. The relations given are valid for electronic analog differential analysers. They are therefore easily extended to mechanical, electromechanical and other types of differential analysers.
There are 9 figures and 8 references, of which 4 are English, 2 Soviet, 2 Czech.

Card 1/1

ASSOCIATION: TESLA, Pardubice

SUBMITTED: February 25, 1959

16.9500

77473
SOV/103-21-1-4/22

AUTHOR: Matyash, I., Shilkhanek, Ya. (Pardubice, Czechoslovakia)

TITLE: Generator of Random Processes With A Given Matrix of Spectral Densities

PERIODICAL: Avtomatika i telemekhanika, 1960, Vol 21, Nr 1, pp 29-35 (USSR)

ABSTRACT: In the study a method is explained of designing a generator of n stationary random processes with an arbitrary matrix of rational spectral densities. This generator consists of a minimum number of the noncorrelated generators of white noise and stable linear filters. The Generation of One Random Process. On the basis of first U.S. reference at the end of this abstract, a generator is considered consisting of a white noise generator Q_1 and of a filter F_{11} with the transfer function $Y_{11}(s)$. In order to obtain an output signal $u_1(t)$ of a given density $G_{11}(s)$, the transfer function of the stable linear filter of a minimum phase variation is given in the form:

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$$Y_{11}(s) = A_1(s), \tag{3}$$

where $A_1(s)$ is a function having neither poles nor zeros on the right-hand side of the half-plane. When in series with this filter another filter is connected varying the phase only and of the transfer function:

$$H_1(s) = \frac{f(s)}{f(-s)}, \tag{4}$$

where $f(s)$ is a polynomial, then the transfer function $Y_{11}(s)$ is as follows:

$$Y_{11}(s) = A_1(s)\,H_1(s), \tag{6}$$

Generator of Random Processes With A Given Matrix of Spectral Densities

77473
SOV/103-21-1-4/22

The Generation of n Random Processes. Figure 2 shows a block diagram of the generator of n random processes.

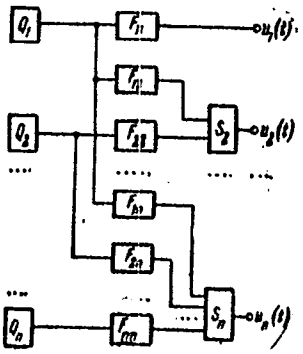

Fig. 2

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Generator of Random Processes With A Given Matrix of Spectral Densities

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SOV/103-21-1-4/22

This system consists of n-noncorrelated generators of white noise $Q_1, Q_2, \ldots, Q_n$, consisting of 1/2 $[n(n+1)]$ linear stable filters F_{ik} $(i = 1,2,\ldots,n;\ k = i, i+1,\ldots,n)$ with transfer functions $Y_{ik}(s)$, and of n - 1 summation devices S_k $(k = 2,3,\ldots,n)$. Process $u_1(t)$ is at the output of filter F_{11}, and process $u_k(t)$ $(k = 2,3,\ldots,n)$ is at the output of the summation device S_k. In order that the output signals $u_1(t)$, $u_2(t),\ldots,u_n(t)$ of the generator represent processes with the given matrix of spectral densities $\|G_{ik}(s)\|$ $(i,k = 1,2,\ldots,n)$ the following conditions must be satisfied:

$$
\begin{aligned}
{}^1G_{11}(s) &= Y_{11}(s)\,Y_{11}(-s),\\
{}^1G_{12}(s) &= Y_{12}(s)\,Y_{11}(-s),\\
{}^1G_{22}(s) &= Y_{12}(s)\,Y_{12}(-s) + Y_{22}(s)\,Y_{22}(-s),\\
&\cdots\cdots\cdots\cdots\cdots\cdots
\end{aligned}
$$

i.e., generally:

$$
{}^1G_{ik}(s) = \sum_{j=1}^{i} Y_{jk}(s)\,Y_{ji}(-s) \qquad \begin{pmatrix} i = 1, 2, \ldots, n \\ k = i, i+1, \ldots, n \end{pmatrix} \qquad (9)
$$

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In this equation the function ${}^{1}G_{ik}(s)$ represents the mutual spectral density of processes $u_i(t)$ and $u_k(t)$. Functions ${}^{1}G_{ik}(s)$ form the matrix of spectral densities $\| {}^{1}G_{ik}(s) \|$ $(i,k = 1,2,\ldots,n)$. The transfer functions $Y_{ik}(s)$ of the linear filters $F_{ik}(s)$ $(i = 1,2,\ldots,n;\ k = i, i+1,\ldots,n)$ must be determined. Introducing the auxiliary function ${}^{r+1}G_{ik}(s)$ $(r = 1,2,\ldots,n-1)$ and corresponding recurrent equations, the following expression for Y_{ik} is found:

$$Y_{ik}(s) = \frac{{}^{i}G_{ik}(s)}{A_i(-s)} H_i(s) \qquad \begin{pmatrix} i = 1, 2, \ldots, n \\ k = i, i+1, \ldots, n \end{pmatrix}. \qquad (20)$$

Functions $H_i(s)$ must be determined so that all $Y_{ik}(s)$ $(k = i, i+1,\ldots,n)$ should be transfer functions of stable filters. The method is illustrated in an example in which a generator is investigated of three random processes whose

spectral densities are given in form:

$$^{1}G_{11}(s) = \frac{2 - s^2}{4 - s^2}, \qquad ^{1}G_{12}(s) = \frac{s^2}{(3 + s)(2 - s)},$$

$$^{1}G_{13}(s) = \frac{2 - s^2}{(3 + s)(2 - s)}, \qquad ^{1}G_{23}(s) = \frac{-2s^3 + 2s^4}{(2 - s^2)(9 - s^2)},$$

$$^{1}G_{22}(s) = \frac{-2s + 2s^3}{9 - s^2}, \qquad ^{1}G_{33}(s) = \frac{4 - 2s^2}{3 - s^2}.$$

In conclusion, the author says that the method given is a general method of design of a generator of random processes with a given matrix of rational spectral densities. The generator consists of a minimum number (n) of white noise generators Q_i and of a minimum number n (n + 1) /2 of linear filters F_{ik}. The block diagram (Fig. 2) makes it possible to determine the transfer functions $Y_{ik}(s)$ of the filters F_{ik} simply, from given spectral densities (Eq. 20). In the Appendix some properties of the matrix of spectral densities are discussed. There are 3 figures; and 9

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Generator of Random Processes With A Given Matrix of Spectral Densities

77473
SOV/103-21-1-4/22

references, 4 Soviet, 1 Czechoslovak, 4 U.S. The U.S. references are: Lanning, J. H., Battin, R. H., Random Processes in Automatic Control, McGraw-Hill, N.Y., 1956; Smith, O. J. M., Feedback Control Systems, McGraw-Hill, N.Y., 1958; Wiener, N., Extrapolation, Interpolation and Smoothing of Stationary Time Series, John Wiley & Sons, 1949; Cramer, H., On the Theory of Stationary Random Processes, Ann. Math., Vol 41, Nr 1, 1940.

SUBMITTED: June 20, 1959

Card 7/7

Z/039/60/021/08/029/032
E073/E535

AUTHOR: Matyáš, Josef

TITLE: Days of New Techniques in Pardubice

PERIODICAL: Slaboproudý obzor, 1960, Vol 21, No 8, p 512

ABSTRACT: Meetings on analogue computing were held on May 31 and June 1, 1960 which were arranged by TESLA Pardubice, the Research and Development Plant Opočinek in cooperation with the Works Branch of ČSVTS.
In his opening address Mr. Šturm, Assistant Director of TESLA, stated that the aim of these meetings was to acquaint the people present on the state of research and development in analogue computing by VVZ (Research and Development Plant) and with operating experience gained so far.
A. Hálka (SVRT) presented a paper reviewing analogue computers produced throughout the world and pointing out the importance of these computers in practical engineering.
In his paper "Analogue computing" Doctor L. Prouza compared digital and analogue computing.

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Z/039/60/021/08/029/032
E073/E535

Days of New Techniques in Pardubice

Engineer V. Pěnka read the paper "Elements of analogue computers" (developed at VVZ Opočinek) giving technical details about them.
Engineer V. Borský read a paper on programming tasks in analogue computers.
Engineer R. Novák read the paper "Simulating non-linearities".
J. Matyáš read a paper on solving various problems by means of analogue differential analysers.
The reading of these papers was followed by a discussion.
During the second day Engineer J. Šilhánek read his paper "Application of analogue computers in control and automation".
Engineer M. Barvíř showed examples of problems solved in the calculating centor VVZ Opočinek.
The conference was followed by an excursion to VVZ Opočinek during which the participants were acquainted with recently developed analogue computers composed of unit elements

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Z/039/60/021/08/029/032
E073/E535

Days of New Techniques in Pardubice

(AP3) and with the design of small computers (AP4). The AP3 computer has been in experimental operation since May 25, 1960. A resolution was passed that the computers AP3 and AP4 should be put into production as soon as possible.

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S/103/60/021/010/009/010
B012/B063

9,7200

AUTHOR: Matyáš, J.

TITLE: Letter to the Editor

PERIODICAL: Avtomatika i telemekhanika, 1960, Vol. 21, No. 10, pp. 1433-1434

TEXT: The writer of this "Letter to the Editor" refers to a paper published by B. Ya. Kogan in this periodical (Ref. 1) and to his own paper published at the same time (Ref. 2). He points out that the methods given by him for the reproduction of schemes of simulators differ from those suggested by B. Ya. Kogan. In the present letter, he supplements B. Ya. Kogan's work by describing the schemes of assemblies of rational-fractional functions for simulators without any auxiliary calculations. It is noted that those assemblies are particularly advantageous which contain all coefficients of the initial differential equation in an untransformed form. Of the methods mentioned in Kogan's paper, only those of direct integration and combined derivations for $b_m = 0$ have these

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advantages. The schemes obtained from these methods proved to be adjoint to one another. For $m < n$ it is possible to obtain, by means of various methods, also other schemes having these advantages. All these schemes may be fully described with feedbacks and couplings. Each of these schemes can be set up without auxiliary calculations. It is only necessary to apply the rules and conditions enumerated and formulated here. As an example, the accompanying figure shows a scheme for the case where $n=5$ and $m=1$. There are 1 figure and 2 references: 1 Soviet and 1 Czech.

16.8000(1121,1132,1344 25290 Z/026/61/006/004/001/002
D257/D304

26.2195

AUTHOR: Matyáš, Jozef (Pardubice)

TITLE: Shaping filters for generating random processes with predetermined statistical characteristics

PERIODICAL: Aplikace matematiky, v. 6, no. 4, 1961, 274 - 285

TEXT: To be able to analyze dynamic systems having random processes in their inputs with the aid of an analogue computer, it is necessary to generate random processes (or random vectors) with prescribed statistical characteristics. This article investigates the problem of determining the transfer functions of the shaping filters used in the generating of random processes. The problem of generating an arbitrary number m of random processes (or of a random vector with m elements) with the prescribed matrix of spectral densities is solved. Reference is made to previous works by the author (Ref. 8: Opisaniye mnogomernykh lineynyikh sistem v matrichnom vide, Avtomatika i Telemekhanika (in the press)), and (Ref.

Card 1/4

Shaping filters for ...

7: L. Prouza, Jan Szilchanek, Primechaniya k voprosu generirovaniya sluchaynykh protsessov s zadannoy matritsey spektral'nykh plotnostey. Avtomatika i Telemekhanika, 1961, v. 22, no. 3) especially for the formulation of the problem. For the case of the singular and regular matrix G (spectral densities) the problem is formulated as: $Y'SY = G$ to be solved for the matrix Y. For definitions see A.M. Yaglom's work (Ref. 1: Vvedeniye v teoriyu statsionarnykh sluchaynykh funktsiy. Uspekhi mat. nauk., v. 7, vypusk 5, 51, 1952, 3 - 168). The matrix Y completely characterizes the system of shaping filters for generating the desired random processes or vectors, as it represents the matrix of the transfer function of the given system. A multidimensional system is defined as having several inputs $v_1, v_2 \cdots v_n$ and several outputs $u_1, u_2 \cdots u_n$ as illustrated in Fig. 1. It is possible to represent a multidimensional system having n inputs and m outputs in diagrammatic form as a system with $m \cdot n$ units, each of which presents a single dimensional system (one input and one output). Fig. 2 shows part of such a schematic presentation. The method of solution is given for some

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25290 Z/026/61/006/004/001/002
D257/D304

Shaping filters for ...

special cases, and also for the general case. The properties of the general solution are formulated in the form of theorems. Theorem 1: The square matrix Y is the solution of the equation $\overline{Y}'Y = G$ where G is a regular positive definite matrix, further $Y = NY_1M$ where Y_1 is any solution of $\overline{Y}'Y = G$, and N, M are square matrices fulfilling conditions: $\overline{N}'N = E$, and $\overline{M}'GM = G$. If the conditions as stated are fulfilled $Y = NY_1M$ also solves the equation $\overline{Y}'Y = G$.

Theorem 2: If G is a singular positive matrix of the m-th. order of value h ($h < m$) then there exists matrix Y with dimensions h, m which is the solution of the equation $\overline{Y}'Y = G$. The results as derived make it possible to realize filters for generating stationary random vectors with the prescribed matrix of spectral densities. If the spectral densities are in the form of rational functions, then the transfer functions will also be rational. This makes the system usable in connection with analogue computers. There are 2 figures and 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc. The

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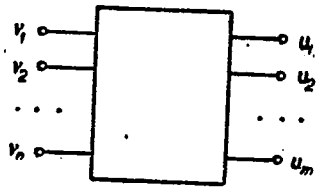
Shaping filters for ... 25290 Z/026/61/006/004/001/002
D257/D304

reference to the English-language publication reads as follows: J.H. Lanning, R.H. Battin, Random processes in automatic control, McGraw-Hill N.Y., 1956.

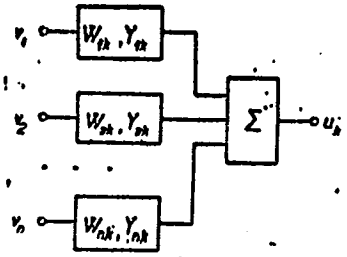
SUBMITTED: November 15, 1960

Fig. 1.



Obr. 1.

Fig. 2.



Obr. 2.

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MATYASH, I. (Pardubitse, Chekhoslovakiya); PROUZA, L. (Pardubitse, Chekhoslovakiya); SHILKHANEK, Ya. (Pardubitse, Chekhoslovakiya)

Problem concerning the method for generating random processes with a given matrix of spectral densities. Avtom. i telem. 22 no.3: 403-405 Mr '61. (MIRA 14:9)
(Automatic control) (Pulse techniques (Electronics))

MATYASH, I. (Pardubitse, Chekhoslovatskaya SSR); SHILKHANEK, Ya. (Pardubitse, Chekhoslovatskaya, SSR)

Description of multidimensional linear systems in matrix form. Avtom.i telem. 22 no.7:876-884 Jl '61. (MIRA 14:6)
(Automatic control) (Radio filters) (Matrices)

26232
S/103/61/022/009/012/014
D206/D304

16.8000 (1121, 1132, 1344)

AUTHORS: Matyáš, J., and Šilhánek, J. (Pardubice, ČSR)

TITLE: Determining multi-dimensional linear system transfer functions from the statistical characteristics of the quantities at the system input and output

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 9, 1961, 1248 - 1252

TEXT: In the present article the authors suggest a method of determining the transfer functions of dynamic control systems from the knowledge of statistical properties of junctions at their inputs and outputs. If the system to be analyzed is not exactly linear or if its behavior cannot be defined in a simple manner, the described method permits finding a linear approximation to such a system. Systems having n inputs and m outputs are said to be multi-dimensional. It is assumed that stationary random processes (a random vector) $v = (v_1, v_2 \dots v_n)$ act at the inputs. If there are within

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Determining multi-dimensional ...

the system certain uncorrelated to the input noise sources, then the output random vector $u(u_1, u_2, \ldots u_m)$ can be expressed by

$$u = x + y = [x_1 + y_1, x_2 + y_2, \ldots, x_m + y_m], \qquad (1)$$

in which x - are components of the output with no noise present and y - the components due to internal noise. Such a system may be represented by an equivalent bloc diagram of Fig.2. The problem becomes: 1) To determine the matrix of transfer functions y of the analyzed system C from the given spectral matrices S, H, G; 2) To decide whether or not internal noise sources exist in system C; 3) If $y \neq 0$, to determine the matrix of spectral densities of the vector and design the shaping filters for the generation of random vector y. Since vectors v and y are uncorrelated, the matrix H

$$H = [H_{ik}] \qquad (i = 1, 2, \ldots, n; k = 1, 2, \ldots m) \quad (4)$$

is also the matrix of mutual spectral densities of random vectors v and x. If random quantities v_i are uncorrelated between themsel-

Card 2/6

Determining multi-dimensional ...

ves, the matrix S is a diagonal matrix and hence the transfer functions y_{ik} are simply determined by

$$Y_{ik} = \frac{H_{ik}}{S_{ii}}. \qquad (7)$$

In a general case, the matrix

$$SY = H \qquad (6)$$

represents m systems of linear algebraic equations with the general matrix of the system S and nm unknowns y_{ij}. System (6) has a unique solution only when its determinant is not zero. Since the matrix S is Hermitian, the condition of a unique solution is

$$|S| > 0. \qquad (8)$$

It is assumed further that condition (8) is satisfied and that there exists therefore an inverse matrix S^{-1} giving the solution of the matrix Eq. (6) in the form of

$$Y = S^{-1} H \qquad (9)$$

Card 3/6

which is the basic matrix relationship for further analysis. The matrix S may be represented as a product by

$$S = \bar{B}' B \qquad (10)$$

when B = a triangular matrix. The elements B_{ik} of matrix B are, with the exclusion of phasing filters, the transfer functions of a system of shaping filters for the generation of random processes having the matrix of spectral densities S. The matrix $\bar{B}'$ is the transposed matrix with conjugate elements with respect to B. It follows that the matrix equation (6) can be replaced by an equivalent set of equations

$$\bar{B}' X = H, \quad BY = X. \qquad (11)$$

Since B, and therefore $\bar{B}'$ are triangular matrices the solution of Eq. (11) does not present any difficulties. From the 1st equation the subsidiary matrix x is determined and from the 2nd equation the required matrix of transfer functions y of system C is then found. Since the above measurements and calculations cannot be made abso-

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lutely accurate, the limiting conditions imposed on the system cannot in practice be fulfilled and the solution y will actually represent a certain approximation of mathematical representation of the described system. If internal noise source exists within the system C it is necessary to evaluate the matrix of spectral densities of the random vector y the components y_i of which correspond the noise at the output. It has been assumed that random vectors v and y are uncorrelated, i.e. the matrix of mutual correlation functions is zero

$$M\{v(t)' y(t + \tau)\} = 0 \qquad (14)$$

where M means mathematical expectation. It is easy to prove that the matrix

$$M\{x(t)' y(t + \tau)\} \equiv 0 \qquad (15)$$

will also be zero, i.e. that random vectors x and y are also uncorrelated. There are 3 figures and 7 Soviet-bloc references.

SUBMITTED: January 10, 1961

Card 5/6

MATYAS, Josef (Pardubice)

Solving the algebraic equations of higher order on analogue computers by the analysis method. Automatizace 6 no.1:3-7, 27 Ja '63.

WEISS, Jaroslav, inz., CSc.; MATYAS, Josef, promovany matematik

Analog models of digital control circuits. Automatizace 6 no.8:185-190 Ag '63.

1. Ceskoslovenska akademie ved, Ustav teorie informace a automatizace (for Weiss)
2. Vyzkumny a vyvojovy zavod Tesla Pardubice v Opocinku (for Matyas).

MATYAS, J.

Conference on electronic computers in Magdeburg. Automatizace 7 no.12:332 D '64.

L 34662-66 EWT(d)/T/EWP(1) IJP(c)

ACC NR: AP6025839 SOURCE CODE: CZ/0080/65/000/005/0116/0120

43
B

AUTHOR: Matyas, Josef (Graduate mathematician; Pardubice)

ORG: none

TITLE: Approximation of linear systems with analog computers

SOURCE: Automatizace, no. 5, 1965, 116-120

TOPIC TAGS: analog computer, linear system, approximation method, linear function, mathematic model, computer application

ABSTRACT: The article describes a new method of approximation of transfers of linear functions by the method of modelling. The examples cited indicate the simplicity and advantageous properties of the method. Orig. art. has: 8 figures and 33 formulas. [JPRS: 32,496]

SUB CODE: 12, 09 / SUBM DATE: none / ORIG REF: 003

Card 1/1 UDC: 518.5:681.142.83

MATYASH, I. [Matyas, J.] (Pardubitse, Chekhoslovatskaya Sotsialisticheskaya Respublika)

Random optimization. Avtom. i telem. 26 no.2:246-253 F '65. (MIRA 18:4)

MATYAS, KAREL

Lesni tezba. [Vyd. 1.] Praha, Statni pedagogicke nakl., 1953. (Ucebni texty vysokych skol) [Lumbering. Vol.1. Technics and organization of production operations. Bibl., diagrs., tables]

SO: Monthly List of East European Accessions, Library of Congress, February, 1954 Vol. 3, No. 2, Uncl.

MATYAS, K

Location of forest roads and determination of their economic value by a method of graphic statistics. p.277. SBORNIK RADA LESNICTVI. Praha. Vol. 29, no. 4, April 1956

SOURCE: East European Accessions List, (EEAL) Library of Congress Vol. 5, No. 8, August 1956

MATYAS, K.

"Utilization of waste in lumbering."

P. 47. (Vestnik. --Praha, Czechoslovaka.) Vol. 5, no. 1, 1958.

SO: Monthly Index of East European Accession (EEAI) LC, Vol. 7, No. 5, May 1958

MATYAS, K.

"Activities of the Czechoslovak Scientific Forestry Society in the first quarter of 1958."

p. 285 (Vestnik, Vol. 5, no. 5, 1958, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 9, September 1958

CZECHOSLOVAKIA/Electricity - Semiconductors. G

Abs Jour : Ref Zhur Fizika, No 12, 1959, 27745

Author : Matyas, Kilos
Inst :
Title : The Effective Mass of Electrons in the Intrinsic Region of InSb

Orig Pub : Chekhosl. fiz. zh., 1958, 8, No 5, 544-547

Abstract : See Abstract 27744.

Card 1/1

G

CZECHOSLOVAKIA/Electricity - Semiconductors.

Abs Jour : Ref Zhur Fizika, No 12, 1959, 27744

Author : Matyas, Kilos

Inst : Institute of Technical Physics, Czechoslovak Academy of Sciences, Prague

Title : The Effective Mass of Electrons in the Intrinsic Region of InSb.

Orig Pub : Ceskosl. casop. fys., 1958, 8, No 6, 658-660

Abstract : The effective mass of the electrons, m_n/m_0, in the region of the intrinsic conductivity was calculated on the basis of a measurement of the temperature dependence of the susceptibility and the Hall constant of single crystal and polycrystalline specimens of InSb of the n and p type. It was found that the values of m_n/m_0 in the same specimen in the investigated

Card 1/2

CZECHOSLOVAKIA/Electricity - Semiconductors. G

Abs Jour : Ref Zhur Fizika, No 12, 1959, 27744

temperature zone from 370 to 550° K are constant, and the values for different specimens fluctuate from 3.43×10^{-2} to 3.53×10^{-2}, which corresponds to the results of other measurements (Referat Zhur Fizika, 1956, No 6, 17143; 1957, No 2, 4157; 1957, No 11, 28279).

Card 2/2

MATYAS, K.

"Economic effect of the density of roads on forest economy."

p.243 (Erdeszet es Faipar, Budapest, Vol. 7, No. 7, Apr. 1958, Unclassified

Monthly Index of East European Accessions (EEAI), Vol. 7, No. 7, Jul

EXCERPTA MEDICA Sec.8 Vol.11/4 Neuro.-Psychiatry Apr 58

MATYAS, M

1736. EXPERIENCES WITH THE TREATMENT OF PROGRESSIVE MUSCULAR DYSTROPHY WITH EXTIRPATION OF THE GLOMUS CAROTICUM - Tapsztalataink a glomus caroticum kiirtasacal kapcsolatosan dystrophia musculorum progressiva esetén - Mátyás M., Miskolczy D., Maros T. and Waitsuk P. Sebészeti Klin. - ORV. SZLE 1956, 2/4 (67-71) Tables 1

In contrast with some data from the literature, in the present authors' experience extirpation of the glomus caroticum has a therapeutic effect in infantile progressive muscular dystrophy (18 cases). The effect, however, is very transitory. In the juvenile (5 cases) and atypical (2 cases) forms of the disease, the extirpation may sometimes lead to arrest and sometimes even to lasting improvement of the disease. The late results (from 18 months to 4 years) of the authors' operations are only partly concordant with Meurer's experiences, who observed 17 patients for 10 months. In the authors' opinion single- or double-sided extirpation of the glomus caroticum is indicated in cases of the juvenile type of progressive muscular dystrophy. In addition to the above results, lasting improvement was obtained by operation in a case of myasthenia gravis.

Waterman - Amsterdam (VIII,6*)

MATIAS, M.

MATIAS, M. The Saarotka portable radio receiver. p. 4.

Vol. 6, No. 10, Oct. 1956.
RADIOMATOR
TECHNOLOGY
Warszawa, Poland

SO: East European Accession, Vol. 6, No.2, Feb. 1957

CA MATYAS, M.

Electrochemistry - 7

Adsorption of some aliphatic alcohols on the dropping-mercury electrode. Miloš Matyáš (Charles Univ., Prague, Czech.). *Chem. Listy* 46, 65-8(1952).—MeOH and EtOH are not adsorbed on the dropping-Hg electrode; they shift the half-wave potentials of Cd and Pb to pos. values and decrease their diffusion currents. BuOH, iso-BuOH, AmOH, iso-AmOH, and octanol are adsorbed on the electrode; they do not affect the diffusion currents and shift the half-wave potentials of bivalent metals (Cd and Pb) to more neg. values. Univalent elements (Ag, Hg, and Tl) are unaffected. The adsorption depends on the nature of the alc., on its concn., and on the compn. of the indifferent electrolyte (K_2SO_4, KNO_3, KCl, NaBr, NaSCN, and KI).
M. Hudlický

MATYAS, MILOS

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
General and Physical Chemistry

[illegible] of zinc oxidized in different [illegible] (Inst. tech. Phys., Praha). *Czechoslov. J. Phys.* 3, [illegible] (in German); cf. *C.A.* 28, 2905[a].—Zn was evapd. on Formvar and examd. by electron diffraction after 24 hrs. in air. Lines were recorded for Zn and also for a hexagonal structure (a = 3.18; c/a = 1.65) essentially different from ZnO (error about 0.5%). Further lines of the anomalous structure were observed upon heating but disappeared at 250–280° with lines of normal ZnO appearing. The change in oxidation rate reported by Vernon at 225° (*C.A.* 33, 7250[a]) may be due to this transformation.

R. D. Misch

② Chem

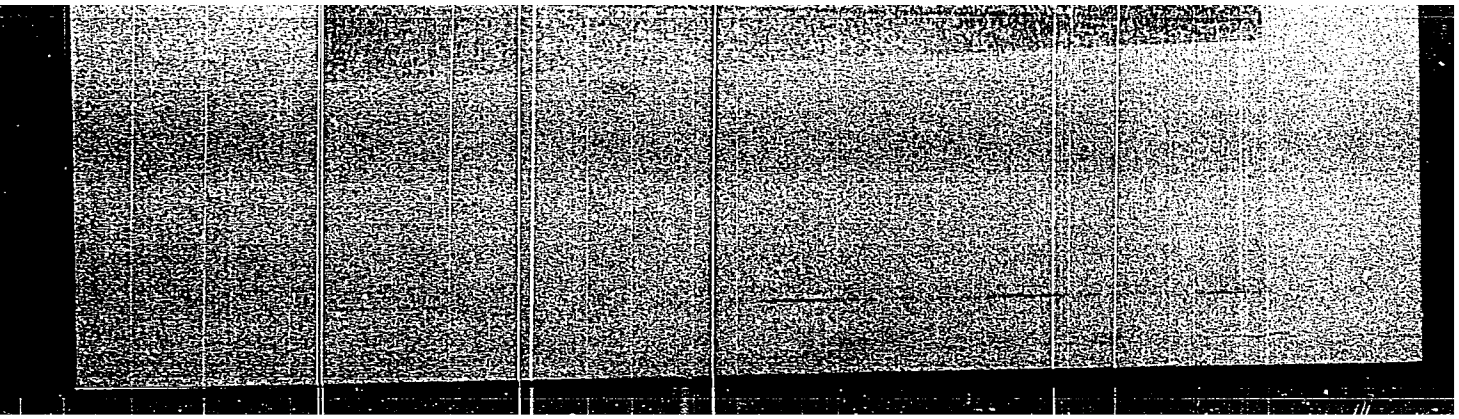
MATYAŠ, M

CZECH

539.232 : 539.27

7731. The overgrowth of Cu_2O on the surface of copper during oxidation. M. MATYÁŠ. Letter in Czech. J. Phys., 3, 260 (Sept., 1953) In Russian.

Electron diffraction examination of Cu oxidized in air up to 250° showed that the resulting layer of Cu_2O lay with (111) parallel to the (100) plane of the Cu base. The [112] direction of the Cu_2O (repeat distance 5·1 Å) was parallel to the [100] axis of the Cu (repeat distance 2.52 Å). The Cd-CdO system is



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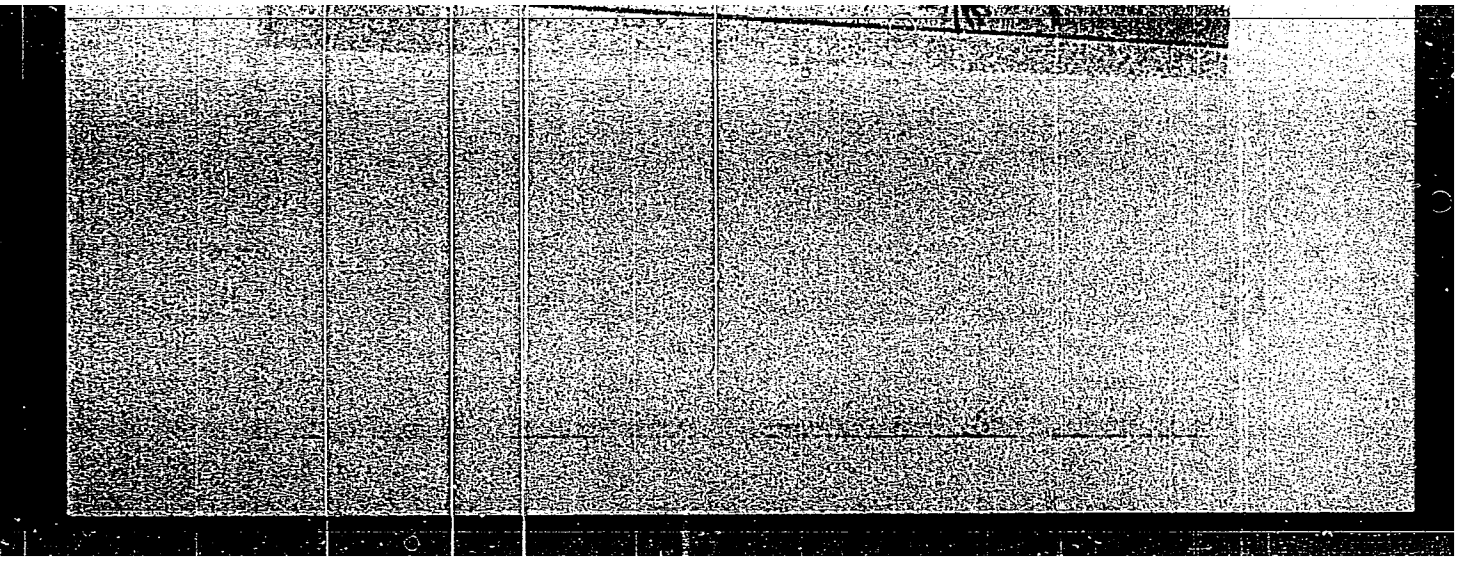
Matyáš, Miloš

CZECH

Surface oxidation of copper. Miloš Matyáš (Acad. Sci., Prague). *Czechoslov. J. Phys.* [illegible] (in German). — The oxidation of Cu surfaces was investigated by electron diffraction. Below 200° only Cu_2O is formed. At temps. above 300° a new (CuO) phase of unknown crystal structure is found. Above 600° only CuO is observed which at 800° decomp. into CuO and Cu_2O. The thicknesses of the oxide layers in dependence on the temp. and time of oxidation are given. The activation energy of the oxidation in the interval of 300-600° is 31.8 kcal. F. Schossberger



APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001033010014-8"

MATYAS, Milos

Electric properties of homeopolar semiconductors. Pokroky fys pev lat 3:44-68. '56

1. Ustav technicke fysiky, Ceskoslovenska akedemie ved, Praha.

CZECHOSLOVAKIA / Physical Chemistry. Crystals. B-5

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 76467.

Author : Matyas, M.
Inst : Not given.
Title : A Possible Cause of Electron Emission from Alkali Metal Halide Crystals and from Silver Halide Crystals.

Orig Pub: Ceskoslov Casop Fys, 7, No 3, 242-245 (1957) (in Czech); Chekohslov Fiz Zhur, 7, No 3, 277-281 (1957) (in German with a Russian summary).

Abstract: It has been shown that as a result of the anisotropic distribution of lattice defects (vacancies and interstitial atoms) in the surface layer of silver halide crystals and alkali metal halide crystals an electrical double layer

Card 1/2

MATYAS, M.

Possible explanation of the emission of electrons from the crystals of alkali and silver halogenides.

P. 248, (Ceskoslovensky Casopis Pro Fysiku) Vol. 7, no.3, 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

MATYAS MILOS

CZECHOSLOVAKIA/Electronics - Electron and Ion Emission H-2

Abs Jour : Ref Zhur - Fizika, No 3, 1958, No 6329

Author : Matyas Milos.
Inst : Not Given
Title : Possible Explanation of the Electronic Emission From Crystals of the Halogenides of Alkali Metals and Silver

Orig Pub : Chekhosl. fiz. zh., 1957, 7, No 3, 277-281

Abstract : See Referat Zhur Fizika, 1958, No 2, 3883

Card : 1/1

MATYAS M.

CZECHOSLOVAKIA/Solid State Physics - General E-1

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 10526

Author : Matyas M.
Inst : ~~Not Given~~
Title : Polish-Czechoslovak Conference on Problems of Solid State Physics

Orig Pub : Vest. CSAV, 1957, 66, No 1-2, 111-115

Abstract : No abstract

Card : 1/1

CZECHOSLOVAKIA/Solid State Physics - General E-1

Abs Jour : Ref Zhur - Fizika, No 9, 1958, No 20281

Author : Matyas Milos
Inst : Not Given
Title : International School of Solid State Physics in Varenna

Orig Pub : Vest. CSAV, 1957, 66, No 9-10, 531-533

Abstract : The school was in session from 14 July to 3 August 1957 in Varenna (Northern Italy), and was organized by the Italian Physical Society. Among the listeners (more than 90 persons) were physicists from Italy, USSR, Czechoslovakia, Poland, US, and other countries. The program was devoted to quantum solid-state theory and the influence of defects of various types on theproperties of solids.

Card : 1/1

CZECHOSLOVAKIA/Physical Chemistry - Crystals. B-5

Abs Jour: Referat Zhur - Khim, No. 9, 1959, 30340

increases from -0.42 to 0.36 10 in the temp range 130-500°K. The Ag impurities present in the PbSe lead to an independence of the susceptibility of the temperature. The magnetic properties of PbSe are explained on the basis of the assumption that with increasing temperature the probability of free electrons being captured by cation vacancies will increase, resulting in a transition of the vacancies from the diamagnetic to the paramagnetic state. In the presence of Ag, cation vacancies are absent. -- V. Sviridov

Card 2/2

16

CZECH/37-58-6-5/30

AUTHOR: Matyáš, Miloš

TITLE: The Effective Mass of Electrons in the Range of Intrinsic Conductivity of Indium Antimonide (Efektivní hmota elektronu v oblasti vlastní vodivosti InSb)

PERIODICAL: Československý Časopis Pro Fysiku, 1958, Nr 6, pp 658 - 660 (Czech)

ABSTRACT: Tauc and Matyáš (Ref 1) have shown by analysing the temperature dependence of the thermoelectric power and of the Hall coefficient, that the effective mass of electrons in the intrinsic region of InSb is constant and equal to 0.036. Measurements by Chasmar and Stratton (Ref 3) of the thermoelectric power have shown that above 330 °K the effective mass is 0.034. Weiss (Ref 2), on the other hand, has concluded from similar measurements that the effective mass was a function of the temperature. In order to resolve this difference of opinion, the effective mass of electrons in the region of intrinsic conductivity of InSb was determined in the present work from the dependence of the magnetic susceptibility and of the Hall coefficient on the temperature. This method has previously been described by Stevens and Crawford (Ref 4), by Geist (Ref 5) and by Bowers (Ref 6).

Cardl/4

The Effective Mass of Electrons in the Range of Intrinsic Conductivity of Indium Antimonide

Because the effective mass of electrons in InSb is considerably less than that of holes, the susceptibility of the carriers in the intrinsic range is given by:

$$\chi_c = \frac{\beta^2}{kT} \frac{n_i}{3\rho} (3 - F_n^2) \qquad (1),$$

β - Bohr magneton, n_i - density of electrons, ρ - density of the material and F_n^2, because the effective mass is isotropic (Ref 11), equals the square of the reciprocal of the effective mass $(m_o/m_n)^2$ (Ref 7). χ_c was deduced from the total susceptibility (Ref 4) and n_i from the measured Hall coefficient (Ref 8).

The samples of InSb, polycrystalline or monocrystals, p-type or n-type, were prepared by a method described by Smirous (Ref 9). The temperature dependence of the susceptibility was measured by a method due to Gouy described by the author (Ref 10). The measurement of the

The Effective Mass of Electrons in the Range of Intrinsic Conductivity of Indium Antimonide

Hall coefficient was described by Tauc and Matyáš in Ref 1.
Figure 1 shows the total susceptibility of a p-type sample of InSb as a function of temperature; Figure 2 shows the logarithm of the Hall coefficient of the same sample as a function of the reciprocal of the temperature. Table 1 shows the effective mass of one sample of InSb as a function of temperature. The effective mass is constant in the range of temperatures 374 to 517 °K. The somewhat higher value of the effective mass at 583 °K is probably due to the temperature dependence of the susceptibility of the lattice, but at present this is not well understood. Table 2 contains the effective masses of various samples, which all have similar constant values within the described region of temperatures. The present work confirms, therefore, that the effective mass of electrons in InSb in the region of intrinsic conductivity is a constant. There are 2 figures, 2 tables and 11 references, 3 of which are Czech, 4 German and 4 English.

CZECH/37-58-6-5/30

The Effective Mass of Electrons in the Range of Intrinsic Conductivity of Indium Antimonide

ASSOCIATION: Ústav technické fysiky ČSAV, Praha (Institute of Technical Physics of the Czech Ac.Sc., Prague)

SUBMITTED: April 19, 1958

Card 4/4

CZECHOSLOVAKIA/Magnetism - Diamagnetism. Paramagnetism F-3

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 8318

Author : Matyas Milos
Inst : Institute of Technical Physics, Czechoslovak Academy of Sciences, Prague, Czechoslovakia
Title : Magnetic Susceptibility of Lead Telluride

Orig Pub : Ceskosl. casop. fys., 1958, 8, No 1, 55-61

Abstract : The author measured the magnetic susceptibility χ of polycrystalline specimens of PbTe and the n and p type in a temperature interval from 90 to 600°K. The n-type specimens had an excess of lead, or an impurity of chlorine, while the p-type specimens had an excess of tellurium or a silver impurity. The measurements of χ were carried out by the method of weighing in inhomogeneous magnetic field. The value of the specimens of the N and p type was negative over the entire temperature range, but in specimens with an excess of any particular component, the value had a maximum near approximately 400°K, while in specimens with impurity

Card : 1/2

of chlorine or silver, the susceptibility increased monotonically with the temperature. To explain this behavior of χ, it is proposed that the total susceptibility of the crystal is the sum of the susceptibility of the ideal lattice χ_G, the susceptibility of the free electrons χ_C, and the susceptibility of the defects χ_P. The χ_G of the ions Pb^{2} and Te^{2-} is diamagnetic and is independent of the temperature. In PbTe, χ_C is paramagnetic and increases with temperature, but is very small compared with χ_G. The appearance of χ_P is due to deviation from the stoichiometry. The deficit of tellurium is considered as the presence of vacancies $Te\square$ in the crystal, capable of receiving two electrons at 0°K. The vacancies $Te\square^{2-}$ occupied by the electrons are diamagnetic. As the temperature increases, they liberate one electron to the conduction band, playing the role of donors with an ionization energy E_D and a concentration N_D. The vacancies, occupied by the second $Te\square^{-}$ electron are paramagnetic. Thus, the diamagnetism of the crystal

Card : 2/3

CZECHOSLOVAKIA/Solid State Physics - General E-1

Abs Jour : Ref Zhur - Fizika, No 12, 1958, No 27406

Author : Matyas Milos
Inst : Not Given
Title : International School of Solid State Physics

Orig Pub : Ceskosl. casop. fys. 1958, 8, No 1, 149-150

Abstract : Report on the work of the International School for Physicists in Varenna (Italy). See Referat Zhur Fizika, 1958, No 9, 20281.

Card : 1/1

CZECHOSLOVAKIA/Magnetism. Diamagnetism. Paramagnetism F-3

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 8319

Author : Matyas Milos
Inst : -
Title : The Susceptibility of Lead Telluride PbTe.

Orig Pub : Chekhosl. fiz. zh., 1958, 8, No 3, 301-308

Abstract : See Abstract 8318

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B

CZECHOSLOVAKIA/Physical Chemistry. Crystals.

Abs Jour: Ref Zhur-Khim., No 5, 1959, 14442.

Author : Matyas M.
Inst :
Title : The Magnetic Susceptibility of Selenides and Tellurides of Heavy Elements.

Orig Pub: Chechosl. fiz. zh., 1958, 8, No 3, 309-314.

Abstract: The temperature dependence, at 130-500° K, of the magnetic susceptibility of a number of polycrystallic semiconductor specimens (PbSe, Sb_2Se_3, Sb_2Te_3, Bi_2Se_3 and Bi_2Te_3) has been measured. It has been established that the susceptibility of PbSe, Sb_2Se_3, Sb_2Te_3 and Bi_2Te_3 (p-type semiconductors) and Bi_2Se_3 (n-type semiconductor) does not depend upon

Card : 1/2

CZECHOSLOVAKIA/Magnetism - Diamagnetism. Paramagentism F-3

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 8320

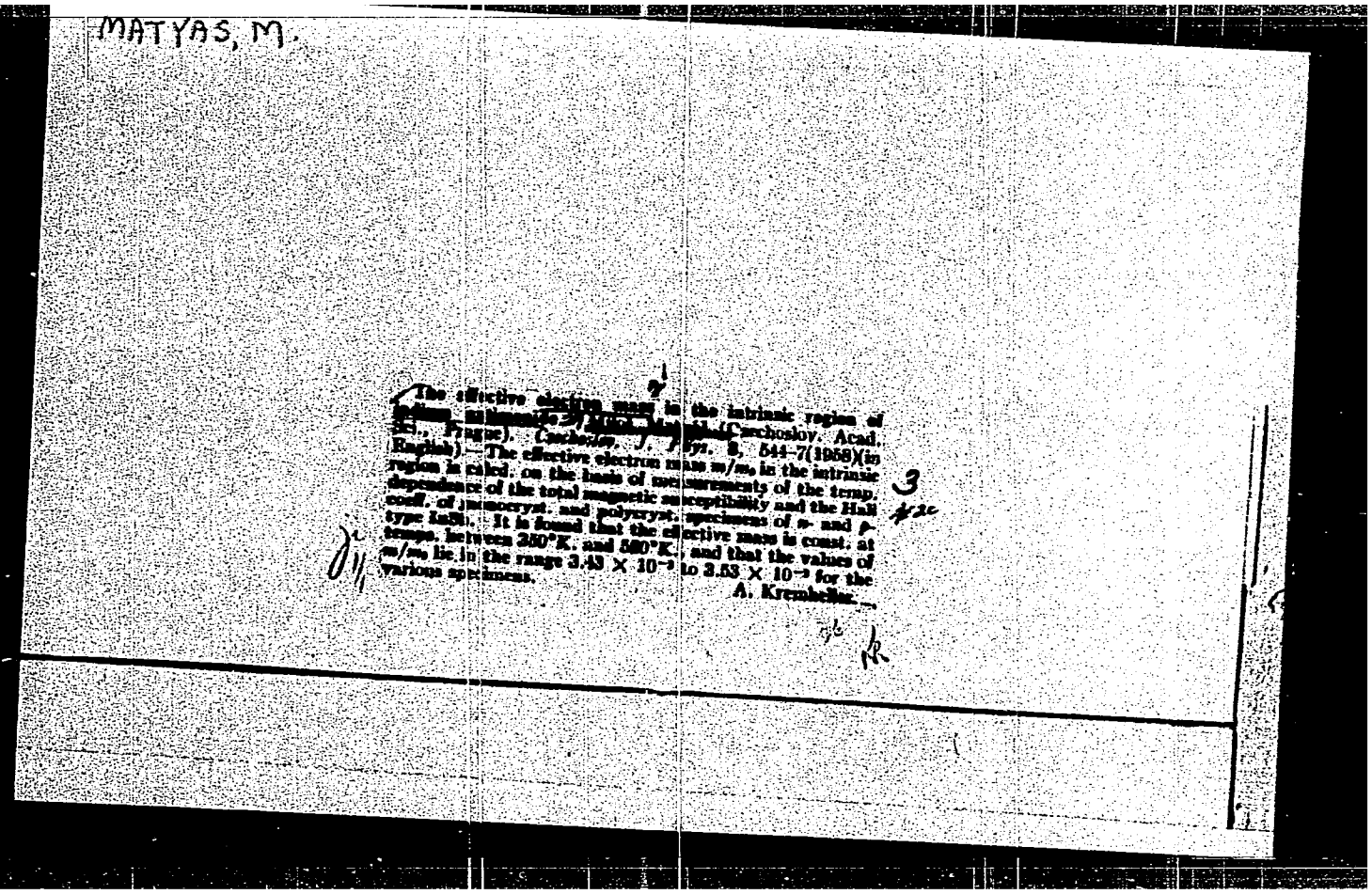
Author : Matyas Milos
Inst : Institute of Technical Physics, Czechoslovak Academy of Sciences, Prague, Czechoslovakia
Title : The Susceptibility of Selenides and Tellurides of Heavy Elements

Orig Pub : Ceskosl. casop. fys., 1958, 8, No 4, 439-443

Abstract : The author has measured the dependence of the magnetic susceptibility χ on the temperature in specimens of PbSe, χ Sb_2Se_3, Sb_2Te_3, Bi_2Se_3, and Bi_2Te_3 in the temperature from 130 to 500°K. In PbSe, χ had the same character as the of PbTe in the preceding paper of Matyas (Abstract 8318). For a specimen of the p-type with excess Se we get E_i = 0.73 ev. For other investigated compounds, χ was independent of the temperature. This gives rise for assuming that χ of these compounds is determined by the diamagnetic susceptibility of the lattice, and the contribution of the free carriers

Card : 1/2

and defects is negligibly small. The values obtained for the molar susceptibility χ_{mol} are considered from the point of view of their correlation with a total number of electrons z in the molecule of the substance. It turns out that χ_{mol} for crystals with an ionic bond, such as LiCl, NaBr, KBr, AgCl, KI, AgBr, PbSe, PbTe, Sb_2Se_3, Sb_2Te_3, Te_3, Bi_2Se_3, and Bi_2Te_3 is approximately equal to 10^6 Z cm^3. For large values of Z, the relation is satisfied more accurately. The presence of the correlation can be explained by the fact that the orbits of the electrons in the ionic crystals are almost undistorted. -- I.I. Forbshteyn



MATYAS, M.

The effective electron mass in the intrinsic region of [illegible] (Czechoslov. Acad. Sci., Prague). *Czechoslov. J. Phys.* B, 544-7(1958)(in English).—The effective electron mass m/m_0 in the intrinsic region is calcd. on the basis of measurements of the temp. dependence of the total magnetic susceptibility and the Hall coeff. of monocryst. and polycryst. specimens of n- and p-type InSb. It is found that the effective mass is const. at temps. between 250°K. and 580°K. and that the values of m/m_0 lie in the range 3.43×10^{-2} to 3.53×10^{-2} for the various specimens.

A. Krembelas

MATYAS, M.

SCIENCE

Periodicals: CESKOSLOVENSKY CASOPIS PRO FYSIKU. Vol. 8, no. 6, 1958

MATYAS, M. Effective mass of electrons in the intrinsic region of indium antimonide. p. 658.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 5, May 1959, Unclass.

CZECHOSLOVAKIA/Solid State Physics - General Problems. E

Abs Jour : Ref Zhur Fizika, No 10, 1959, 22541

Author : Matyas, Milos
Inst :
Title : Conference on Problems of Solid State Physics Held in Brussels, 2 - 7 June 1958.

Orig Pub : Vest. CSAV, 1958, 67, No 9-10, 650-653

Abstract : No abstract.

Card 1/1

MATYÁŠ, Miloš

AUTHOR: Miloš Matyáš CZECH/37-59-2-12/20

TITLE: Letter to the Editor: A Note on the Magnetic Susceptibility of Semi-conducting Compounds of $A^{III}B^{V}$

PERIODICAL: Československý Časopis Pro Fysiku, 1959, Nr 2, pp 211-212

ABSTRACT: 90% of the total value of the magnetic susceptibility of a semiconductor at any given temperature is due to the lattice (Refs 1,2,3). It is possible to measure the susceptibility due to free carriers and the susceptibility due to lattice defects. The theoretical calculation of the diamagnetism of the lattice is difficult and neither the classical nor the quantum theory give satisfactory results. The author (Ref 3) has drawn attention to the empirical relation between the molar susceptibility of $A^{IV}B^{VI}$ and $A_2^{V}B_3^{VI}$ compounds and the total number, Z, of electrons of the molecules.

$$\chi_{mol} = k(n_A Z_A + n_B Z_B) = kZ \qquad (1)$$

The value of k is -0.93×10^{-6} cgs units. This equation has been found to be valid for several further semiconductors and some typical ionic crystals, such as

Card 1/2

Letter to the Editor: A Note on the Magnetic Susceptibility of Semiconducting Compounds of $A^{III}B^{V}$

halogens and selenides, etc. Values from Ref 4 have been used to verify this relation. Compounds $A^{III}B^{V}$ definitely do not follow Eq (1), but even for these, an empirical relation can be found.

$$\chi_{mol} = -\left[\frac{Z_A(Z_A + Z_B)}{100} + 13\right] \cdot 10^{-6} = -\left(\frac{Z_A Z}{100} + 13\right) \cdot 10^{-6} \quad \text{(Eq 4)}$$

Table 1 shows the good agreement of Eq (4) with experimental results (Ref 1). The susceptibility of the compounds $P_{0.2}As_{0.8}$ has been calculated by a similar relation (Eq 5). It seems that Eq (4) is mainly valid for compounds that predominantly have covalent bonds. There are 1 table and 6 references, of which 2 are English, 2 Czech, 1 French and 1 German.

Card 2/2

ASSOCIATION: Ústav technické fysiky ČSAV, Praha
(Institute of Technical Physics, Ac. Sc., Prague)

SUBMITTED: August 13, 1958

MATYAS, M

CZECHOSLOVAKIA/Magnetism - Diamagnetism. Paramagnetism. F

Abs Jour : Ref Zhur Fizika, No 1, 1960, 1213

Author : Matyas, Milos
Inst : -
Title : A Note on the Magnetic Susceptibility of Semiconducting Compounds of $A^{III}B^{V}$

Orig Pub : Chekhosl. fiz. zh. 1959, 9, No 2, 257-258

Abstract : A brief communication. The author has found earlier (Referat Zhur Fizika, 1959, No 4, 8320, 8321) an empirical relation between the molar susceptibility of compounds of the type A^4B^6, $A_2^{V}B_3^{VI}$ and the total number Z of electrons in the molecule. The susceptibility of the compound $InP_{0.2}As_{0.8}$ agrees well with the value calculated in accordance with the formula

$$\chi_{mol} = -\left\{\frac{Z_A[Z_A + \ldots]}{\ldots} + \ldots\right\} \cdot 10^{-6}.$$

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Czech Acad. Sci.

CZECHOSLOVAKIA/Magnetism - Diamagnetism. Paramagnetism. F

Abs Jour : Ref Zhur Fizika, No 1, 1960, 1213

Preliminary investigation shows that the susceptibility obeys the equation obtained both in the substances with predominantly heteropolar bond, and those with a covalent bond. The author considers it possible to judge, from the measurement of the susceptibility, concerning the presence of a solid solution for a new phase in various compounds. -- A.I. Karchevskiy

Card 2/2

Z/037/60/000/01/012/014
E073/E535

AUTHOR: Matyáš, Miloš

TITLE: Seminar on Dislocations

PERIODICAL: Československý časopis pro fysiku, 1960, Nr 1, p 89

ABSTRACT: The Institute of Technical Physics organized during 1958/59 a seminary on dislocations. The reason for this seminary was that dislocations as disturbances in the crystal lattice manifest themselves not only in the explanation of the mechanical properties of solids but also in the discussion of various other phenomena as, for instance, the electric conductivity of semiconductors, the absorption curves of semiconductors, the electron exoemission ion crystals, luminescence, magnetization curves etc. Nine lectures were held by members of the physics institutes of the Czechoslovak Academy of Sciences and of university physics chairs. In addition to physicists of the Academy of Sciences and universities, numerous specialists from industrial research laboratories participated in the seminary. Each lecture was followed by a thorough

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Z/037/60/000/01/012/014
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Seminary on Dislocations

discussion. The following lectures are listed. "Basic concepts and quantitative models of the theory of dislocations" and "Incomplete dislocations", both by F. Kroupa, Physics Institute, Czechoslovak Academy of Sciences, Prague (Fysikální ústav ČSAV). This lecturer explained the types of dislocations known at present, their properties and the method of describing quantitatively individual dislocations, particularly he dealt in detail with the Burgers vector. In his paper "Dislocations and mechanical properties" M. Boček, Chair of Solid State Physics, Mathematics-Physics Department, Charles University (Katedra fysiky pevných látek, matematicko-fysikální fakulta, Karlova universita) dealt with using dislocations in explaining the mechanical properties of metals. In the paper "Formation of dislocations during the growth of crystals" P. Kratochvíl from the same Chair showed how dislocations form during the growth of crystals and dealt in particular detail with single crystals of germanium and silicon. In the paper "Methods of observing dislocations

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in crystals" B. Šesták, Physics Institute, Czechoslovak Academy of Sciences, reviewed the methods of observing dislocations and studying their properties. In the paper "Internal damping in dislocations" K. Míšek, Institute of Technical Physics, summarized the available knowledge on this little studied subject and showed how dislocations can be applied for explaining the observed phenomena. M. Trlifaj, Physics Institute, Czechoslovak Academy of Sciences, dealt with partly published work of the late Professor Z. Matyáš relating to the first experiment of using dislocations in explaining luminescent phenomena, particularly in silver halogenide crystals. Z. Dragoun, Military Academy, AZ, Brno (Vojenská akademie AZ), dealt with methods of detecting dislocations in crystals of germanium and silicon and their influence on certain properties of these substances in the paper "Dislocations in valency crystals". The seminary closed with the lecture by A. Bohun, Institute of Technical

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Physics, Czechoslovak Academy of Sciences, "Coloured centres and dislocations" in which he explained present conceptions on dislocations and ion crystals and summarized the experiments on explaining the influence of dislocations on the mechanism of formation and extinction of coloured centres. The lectures of this seminary will be published in Vols 6 and 7 of the Collection "Pokroky fysiky pevných látek" (Progress in Solid State Physics) published by the Czechoslovak Academy of Sciences.

(Note: This is virtually a complete translation)

ASSOCIATION: Ústav technické fysiky ČSAV, Praha
(Institute of Technical Physics, Czechoslovak Academy of Sciences, Prague)

SUBMITTED: September 29, 1959

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Z/037/60/000/02/015/018
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AUTHOR: Matyáš, Miloš

TITLE: International Conference on Solid-state Physics Held in Hungary in September, 1959

PERIODICAL: Československý časopis pro fysiku, 1960, Nr 2, pp 185 - 186

ABSTRACT: A report of a conference held jointly by the Hungarian Physical Society and the East German Physical Society at Balatonfüred on September 14-19, 1959. Over 200 physicists attended and in addition to the Communist bloc countries there were participants from West Germany, France, Austria and Switzerland. The main subjects of the conference were the following: growth of crystals, physics of semiconductors, lattice distortions, luminescence, metal physics. Over 80 papers were read and very brief information is given about some of these.

ASSOCIATION: Ústav technické fysiky ČSAV, Praha (Institute of Technical Physics, ČSAV, Prague)

SUBMITTED: February 4, 1959

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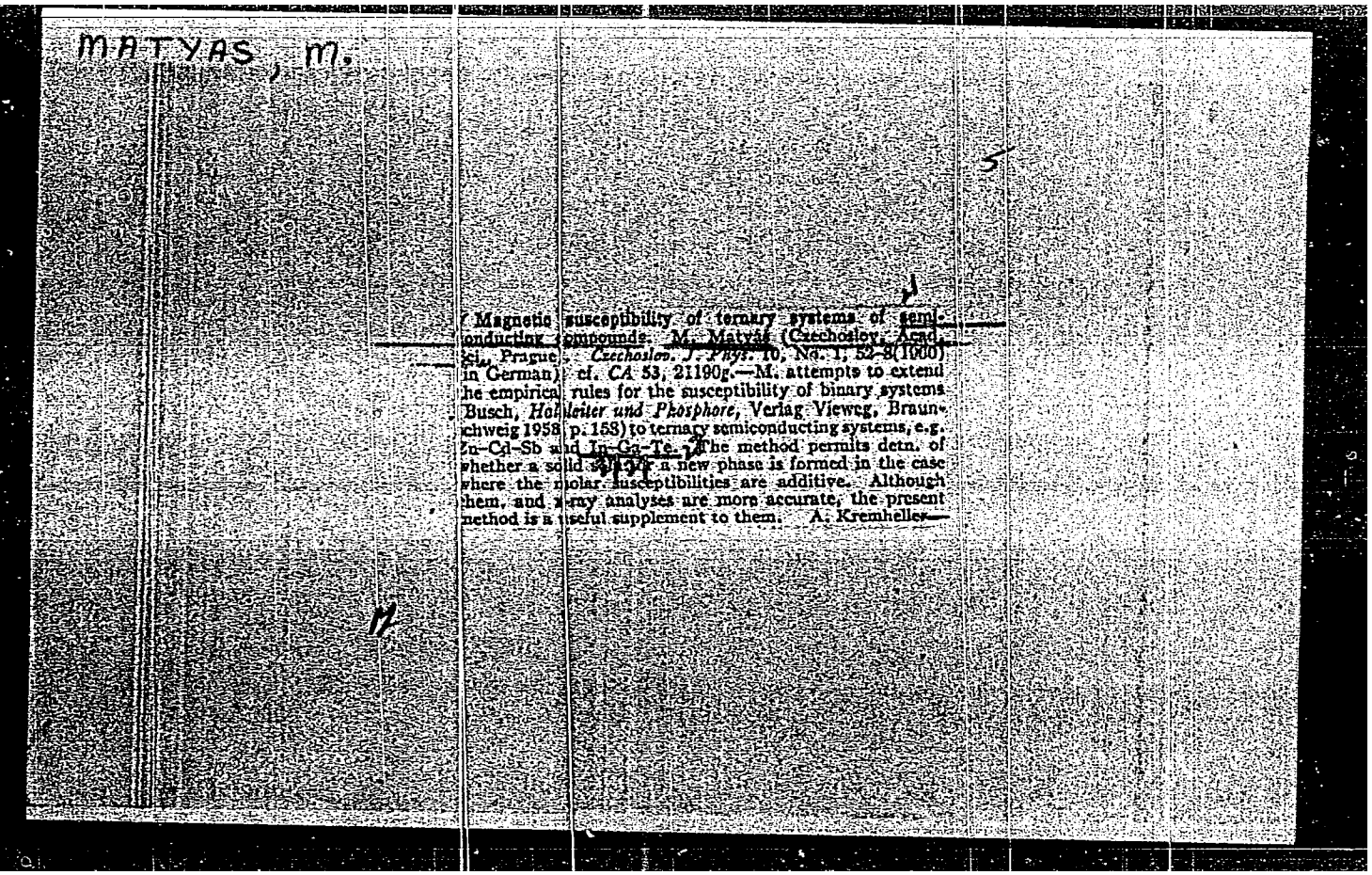

MATYAS, M.

Magnetic susceptibility of ternary systems of semiconductive compounds. M. Matyáš (Czechoslov. Acad. Sci., Prague). *Czechoslov. J. Phys.* 10, No. 1, 52–8(1960) (in German). cf. *CA* 53, 21190g.—M. attempts to extend the empirical rules for the susceptibility of binary systems (Busch, *Halbleiter und Phosphore*, Verlag Vieweg, Braunschweig 1958, p. 158) to ternary semiconducting systems, e.g. Zn–Cd–Sb and In–Ga–Te. The method permits detn. of whether a solid soln. or a new phase is formed in the case where the molar susceptibilities are additive. Although them, and x-ray analyses are more accurate, the present method is a useful supplement to them. A. Kremheller—

MATYAS, Milos

International Conference on the Physics of Semiconductors in Prague, 1960. Pokroky mat fyz astr 6 no.1:46-47 '61.

MATYAS, Milos

New books on semiconductors. Pokroky mat fyz astr 6 no.5:290-291 '61.

(Semiconductors)

MATYAS, Milos

"Proceedings of the International Conference on Semiconductor Physics, Prague 1960". Reviewed by Milos Matyas. Pokroky mat fyz astr 6 no.6: 341 '61.